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Lagano

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(54) **SWING TRAINING DEVICE AND SYSTEM**

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(51) **Int. Cl.**
A63B 69/36 (2006.01)

(52) **U.S. Cl.** **473/270**; 473/269; 473/272; 473/452

(58) **Field of Classification Search** 473/218, 473/266, 269, 270, 271, 272, 273, 278, 452
See application file for complete search history.

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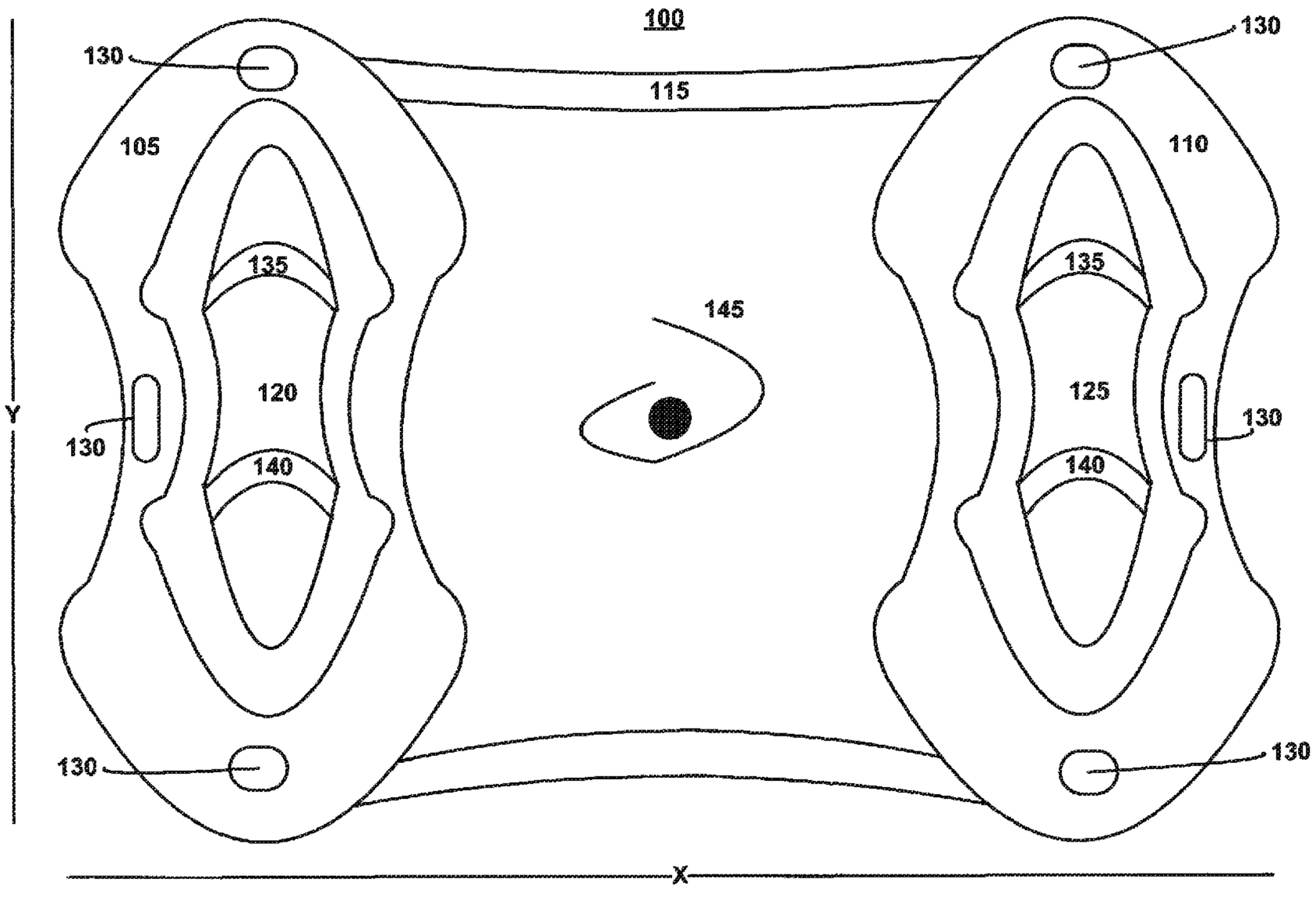
(57) **ABSTRACT**

Described is a swing training device comprising a first foot plate, a second of foot plate, a connector connecting the first foot plate to the second foot plate, a first foot pad pivotably mounted on the first foot plate, and a second foot pad pivotably mounted on the second foot plate. The swing training device may be useful for teaching balance and developing core muscles used while swinging a sporting device.

16 Claims, 2 Drawing Sheets



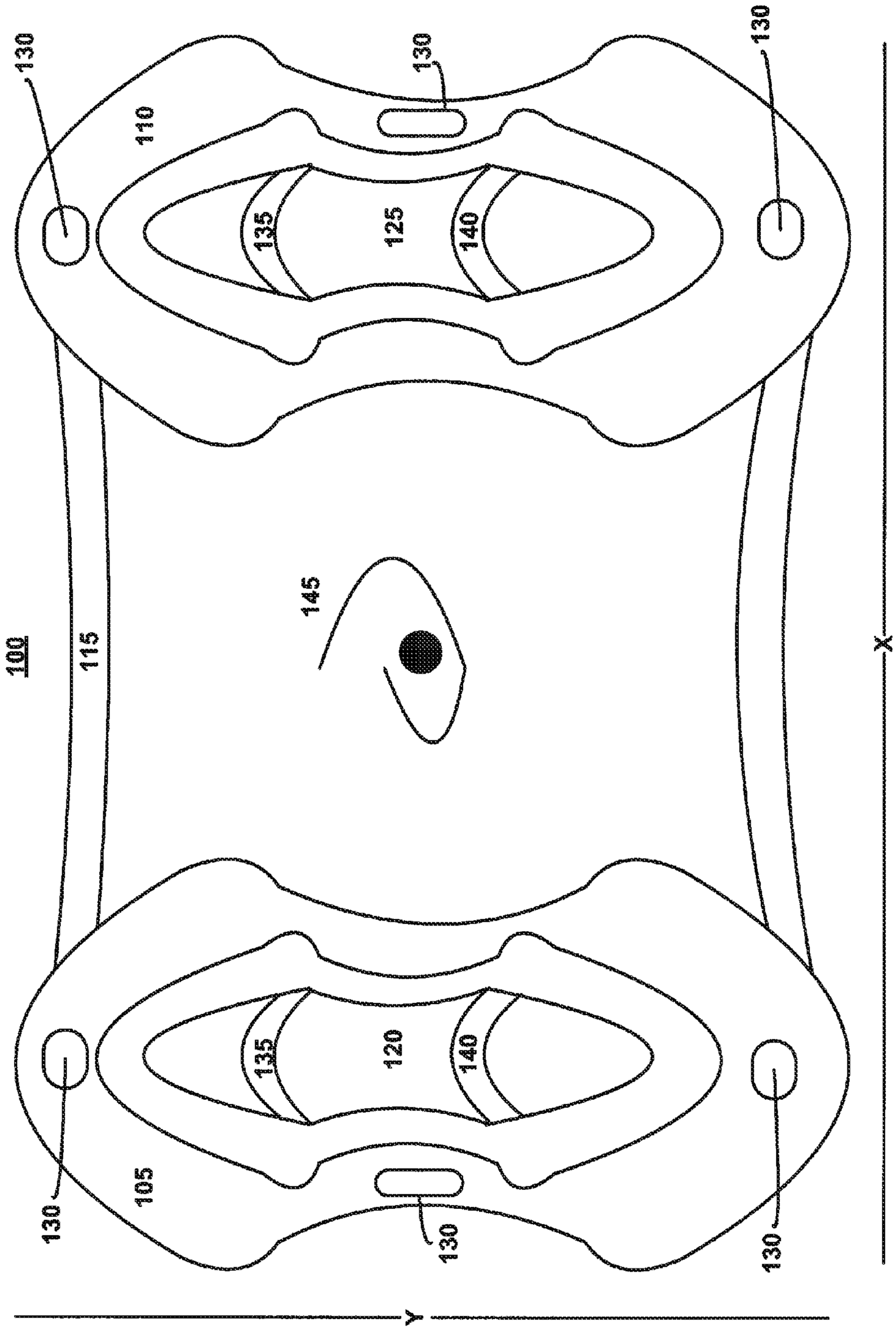

130
130
130
110
135
125
140
145
100
115
105
120
135
140
130
130
130
X
Y

Fig. 1

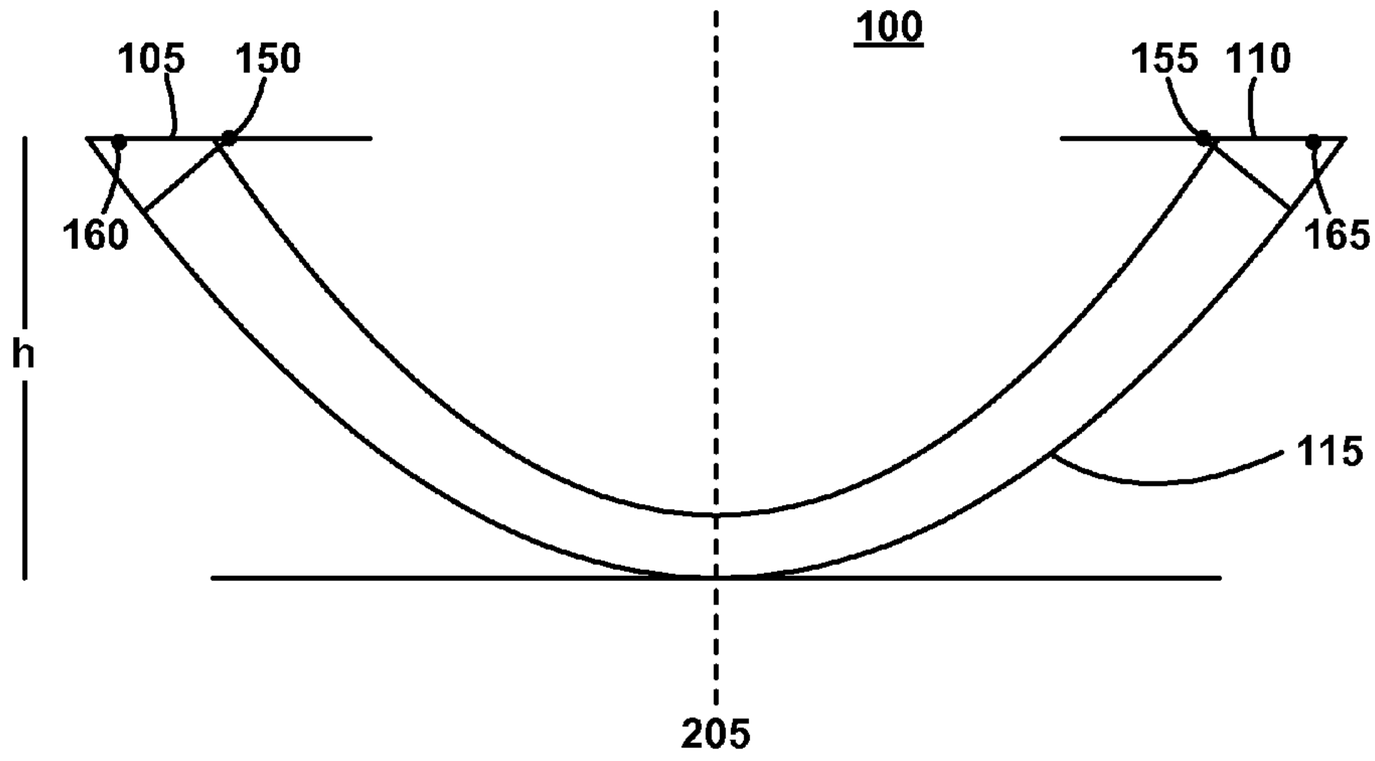

100
105
150
155
110
160
165
h
115
205

Fig. 2

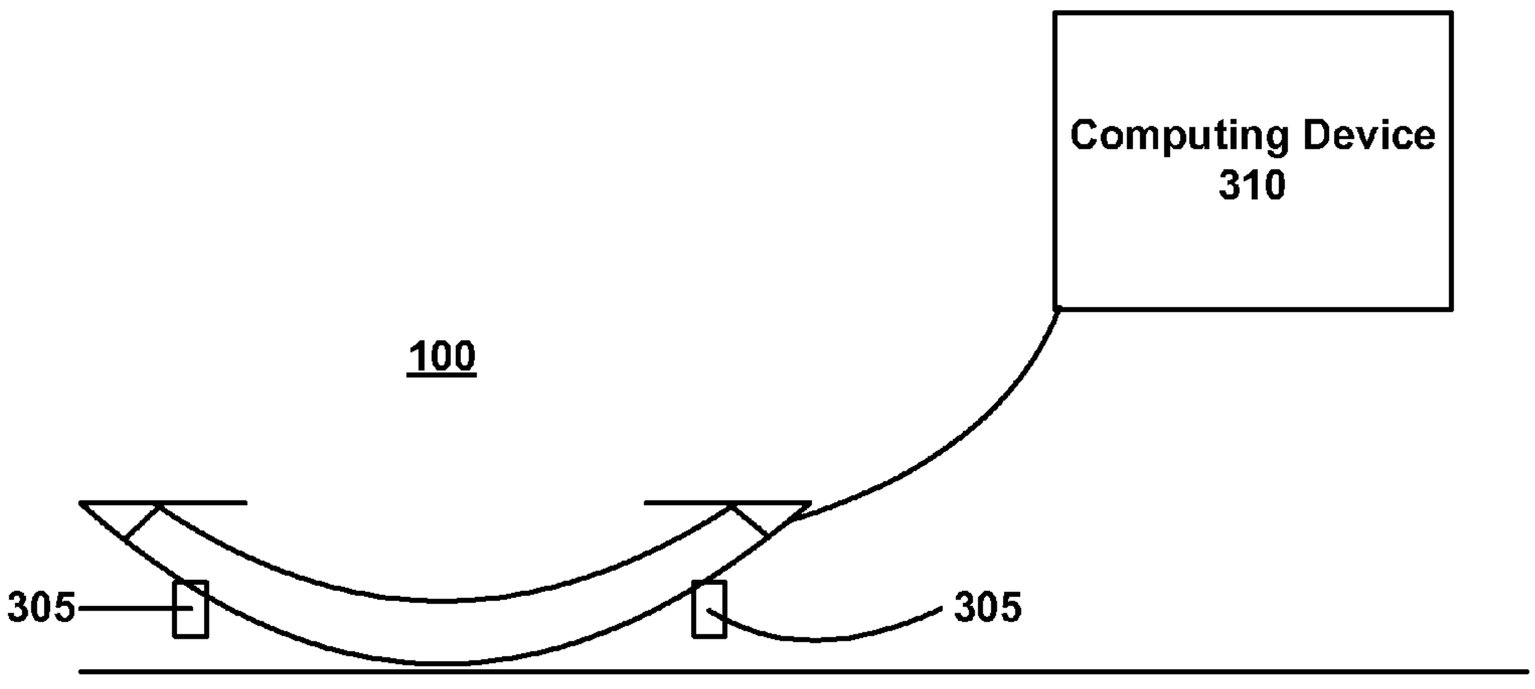

Computing Device
310
100
305
305

Fig. 3

SWING TRAINING DEVICE AND SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 61/268,257 filed on Jun. 10, 2009.

BACKGROUND OF THE INVENTION

Various sports require the use of core muscles (e.g., the lower and upper back, abdomen and hips) to swing an apparatus during play. For example, in golf and hockey, a player swings an apparatus in a pendulum-type motion. In baseball, softball and tennis, a player swings an apparatus across his body. Each swing motion utilizes the core muscles to generate speed and power to drive an object at a desired velocity and toward a desired direction.

Balance is also a critical factor in developing and refining the swing, because shifting weight from front-to-back and/or pivoting on the front and/or back foot significantly affects the velocity and direction of the object struck.

Training the core muscles through exercises may not provide corresponding results in developing the swing, because such exercises may not incorporate the balance training that is required to achieve the desired result. Thus, there is a need for a means to train an individual on the proper swing technique, which incorporates core muscle development and balance training.

SUMMARY OF THE INVENTION

The present invention describes a swing training device and system. In an exemplary embodiment, a swing training device comprises a first foot plate, a second of foot plate, a connector connecting the first foot plate to the second foot plate, a first foot pad pivotably mounted on the first foot plate, and a second foot pad pivotably mounted on the second foot plate.

In an exemplary embodiment, a system for swing training comprises a swing training device that comprises a first foot plate, a second of foot plate, a connector connecting the first foot plate to the second foot plate, a first foot pad pivotably mounted on the first foot plate, and a second foot pad pivotably mounted on the second foot plate, and a computing device communicatively coupled to the swing training device. The computing device may receive signals indicative of movement of at least one component of the swing training device.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the apparatus and system of the present invention may be obtained by reference to the following Detailed Description when taken in conjunction with the accompanying Drawings wherein:

FIG. **1** is a top-view of an exemplary embodiment of a swing training device according to the present invention;

FIG. **2** is a side-view of an exemplary embodiment of a swing training device according to the present invention; and

FIG. **3** is an exemplary embodiment of a system for swing training according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention may be further understood with reference to the following description and the appended drawings, wherein like elements are referred to with the same reference numerals. The present invention describes a device and system for swing training for one or more activity types including, but not limited to, golf, hockey, baseball, softball and tennis. Those of skill in the art will understand that the same device may be utilized for all (or a subset) of activity types, or the swing training device may be specifically designed for each activity type.

FIG. **1** shows an exemplary embodiment of a swing training device **100** according to the present invention. In this embodiment, a first foot plate **105** is connected to a second foot plate **110** via a connector **115**. On a top surface of the first foot plate is a first foot pad **120**, and on a top surface of the second foot plate is a second foot pad **125**. The first and second foot pads **120**, **125** may be sized and shaped to receive a user's feet (with or without shoes or sneakers on). For example, each foot plate may have a length y, which may be selected based on the type of user (child or adult, or by height or weight), the activity type and/or the skill level of the user. In one exemplary embodiment, the length y may be about 17-20 inches. The device **100** may have a width x which indicates a distance between outer edges of the foot plates **105**, **110** with the connector **115** therebetween. In one exemplary embodiment, the width x may be about 25-30 inches.

Each foot pad may have a top surface which is formed from (or coated with) a material which prevents slippage of the user's foot during use of the device **100**.

Each of the first and second foot pads **120**, **125** may be pivotably connected to the first and second foot plates **105**, **110**, respectively. A pivoting arrangement **150**, **155** (e.g., ball bearings, rotatable disc, etc.) may be formed at a midpoint of each of the first and second foot pads **120**, **125** or offset from the midpoint. The pivoting arrangement **150**, **155** may further include at least one stopping member **160**, **165** restricting rotation of the foot pad relative to the foot plate to a predefined angular range. The predefined angular range may be the same or different for the first and second foot pads **120**, **125**. In one exemplary embodiment, each of the first and second foot pads **120**, **125** may be slidably coupled to the pivoting arrangement, such that a user may move each foot pad relative to the pivoting arrangement and change a location of an axis of rotation of the foot pads relative to the foot plates. Each foot pad may then be secured to the pivoting arrangements to ensure that the foot pads do not slide relative to the foot plates during use. This may be useful when a user desires to train with, for example, an "open" or "closed" stance in baseball.

The connector **115** may detachably engage the first and second foot plates **105**, **110**. For example, different size foot plates may be used for children and adults, for different activity types, and/or for different skill levels.

At least one handle **130** may be formed in or attached to the device **100**. For example, as shown in the exemplary embodiment of FIG. **1**, three handles **130** may be formed (e.g., as cut-outs) in the first foot plate **105** and three handles **130** may be formed in the second foot plate **110**. The handles **130** may allow the user to carry the entire device **100** or the foot plates **105**, **110** separately (e.g., when detached from the connector **115**). In another exemplary embodiment, the handles **130** may be straps or grips attached to the foot plates **105**, **110**. Those of skill in the art will understand that the location and number of the handles **130** may vary.

At least one adjustable strap may be fixed to each of the first and second foot pads **120**, **125**. In the exemplary embodiment shown in FIG. **1**, a pair of adjustable straps **135**, **140** may be fixed to each of the first and second foot pads **120**, **125**. The adjustable straps **135**, **140** may be loosened to allow the user to slide his foot onto the foot pad and tightened when the foot

is properly in place. The foot pads may include indicia (e.g., a foot outline) indicating the proper placement of a foot on the foot pad. The adjustable straps **135**, **140** may be tightened and secured by Velcro, buckles, ties, etc.

In an exemplary embodiment, a logo **145** may be printed on the device **100**. In the exemplary embodiment shown in FIG. **1**, the logo **145** may be printed on a surface of the connector **115**.

FIG. **2** shows a side view of an exemplary embodiment of the device **100**. The connector **115**, as shown in this exemplary embodiment, is symmetrically concave and U-shaped. A height h indicates a distance from a midpoint **205** of the connector **105** to a plane of the foot plates **105**, **110**. The height h may be selected based on, for example, the type of user (child or adult, or by height or weight), the activity type and/or the skill level of the user. For example, in one exemplary embodiment, the height h is about 5 inches if the user is a beginner and about 8 inches if the user is an advanced user. Those of skill in the art will understand that the shape of the connector **115** may vary and that it may be asymmetrical. For example, in one exemplary embodiment, a point at which the connector **115** contacts a surface (e.g., the ground or playing surface) may be shifted closer to either of the first or second foot plates **105**, **110**. In this exemplary embodiment, maintaining balance on the device **100** may require the user to shift his weight toward the opposite foot plate. In another exemplary embodiment, the connector **115** may be conical.

In use, a user may place his feet in the foot pads **120**, **125** and secure his feet thereto using the adjustable straps **135**, **140**. The user may shift his weight until neither of the foot plates **105**, **110** contacts the ground, and the user is required to maintain the distribution of his weight on the device **100** to keep the foot plates **105**, **110** from contacting the ground. The user may then practice swinging a sporting apparatus (e.g., golf club, hockey stick, baseball/softball bat, tennis racquet, etc.) while standing on the device **100**. The pivoting arrangement on each of the foot pads **120**, **125** allows the user to pivot relative to the foot plates **105**, **110**, which teaches balance and strengthens core muscles.

FIG. **3** shows an exemplary embodiment of a system **300** according to the present invention. The system **300** may comprise the device **100** and a computing device **305** communicatively coupled thereto. The computing device **305** may receive signals from the device **100** which indicate movement of one or more components of the device **100**. For example, sensors **305** may be placed on the connector **105** and send signals to the computing device indicative of a tilt angle of the connector **105**. Sensors may also be placed on the foot pads **120**, **125** to generate signals indicative of rotation thereof. The computing device **105** may receive the signals from a wired or wireless connection with the device **100**. Those of skill in the art will understand that the device **100** may include or be coupled to the appropriate hardware for transmitting (and, optionally, receiving) data signals.

The computing device **305** may utilize the signals from the device **100** to provide feedback data to the user regarding his swing. For example, the feedback data may include information regarding the user's balance, projected velocity of object struck, projected direction of object struck, a speed of the user's swing, a force of the user's swing, etc. The feedback data may also include one or more instructions for correcting or enhancing the user's swing. For example, the computing device **305** may include a display device which displays an image of the user's swing and displays one or more corrective actions (e.g., weight distribution, swing speed, etc.) which the user should take to correct or enhance his swing. The instructions and/or corrective actions may be generated by comparing the feedback data to reference data indicative of desired swing characteristics or a range thereof. The desired swing characteristics may be input by the user or downloaded from a remote location, device and/or medium.

Those of skill in the art will understand that various modifications may be made to, for example, the dimensions of the device **100**. Additionally, the device **100** and/or any of its components may be made from the same or different materials including, but not limited to, plastic, wood, and rubber.

The previous description is of a preferred embodiment for implementing the invention, and the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.

What is claimed is:

1. A swing training device, comprising:
a first foot plate;
a second of foot plate;
a connector connecting the first foot plate to the second foot plate, wherein the connector is concave;
a first foot pad pivotably mounted on the first foot plate; and
a second foot pad pivotably mounted on the second foot plate.

2. The swing training device according to claim **1**, further comprising:
at least one handle attached to at least one of the first and second foot plates.

3. The swing training device according to claim **1**, further comprising:
at least one adjustable strap fixed to each of the first and second foot pads.

4. The swing training device according to claim **1**, wherein the connector is detachably connected to the first and second foot plates.

5. The swing training device according to claim **1**, wherein a midpoint of the connector is about 5 to 8 inches lower than a plane of the first and second foot plates.

6. The swing training device according to claim **1**, wherein a distance from a first outer edge of the first foot plate to a second outer edge of the second foot plate is about 25 to 30 inches.

7. The swing training device according to claim **1**, wherein a distance from a top edge of each of the first and second foot plates to a bottom edge of each of the first and second foot plates is about 17 to 20 inches.

8. The swing training device according to claim **1**, further comprising:
a logo imprinted on the connector.

9. The swing training device according to claim **1**, further comprising:
at least one stopping member restricting rotation of at least one of the first and second foot pads to a predefined angular range.

10. A system for swing training, comprising:
a swing training device, the swing training device comprising:
a first foot plate;
a second of foot plate;
a connector connecting the first foot plate to the second foot plate, wherein the connector is concave;
a first foot pad pivotably mounted on the first foot plate; and
a second foot pad pivotably mounted on the second foot plate; and
a computing device communicatively coupled to the swing training device, wherein the computing device receives

signals indicative of movement of at least one component of the swing training device.

11. The system according to claim **10**, wherein the computing device receives the signals via at least one of a wired and wireless data transmission.

12. The system according to claim **10**, further comprising:

a display device displaying a graphical representation of the signals.

13. The system according to claim **10**, wherein the computing device provides feedback data based a comparison of the signals to reference data.

14. The system according to claim **13**, wherein the reference data is indicative of a predefined range of movement of the at least one component of the swing training device.

15. The system according to claim **14**, wherein the reference data is selected based on activity type.

16. The system according to claim **15**, wherein the activity type is at least one of golf, hockey, baseball, softball and tennis.

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